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# Essence and features of economic security of the industry sector

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**Abstract.** Ensuring the economic security of the industry sector and its element, energy security, is critical for the economies of countries, especially in the current environment of escalating military conflicts. The purpose of this study was to investigate the most likely risks to the security of the industrial sector, taking the example of the oil industry. The study employed the formal legal method, the method of qualitative textual analysis, the descriptive method, the method of statistical analysis, and the survey method. The study determined the place of energy security, specifically the security of the oil industry, in the system of economic security and emphasised its exceptional significance, especially in times of war. The principal global risks to the security of the oil industry were identified, including increased economic dependence for import-dependent countries and for countries dependent on oil exports; escalation of conflicts due to disagreements over resource control; and terrorist and cyberattacks. It was found that the main threats to Ukraine are generated by Russia's invasion of its territory, which entails such critical risks as the physical destruction of oil industry facilities and cybersecurity breaches. The study confirmed that the war in Ukraine could have a substantial impact on the energy security of the European Union. This impact may result in the postponement of the association's environmental goals due to the need to urgently ensure its own energy security. The study identified ways to improve security in the Ukrainian oil industry in times of war, including ensuring physical security and cybersecurity, developing crisis response plans, and improving the energy efficiency of the national industry. The findings of this study may be useful in developing measures to optimise energy policy

**Keywords:** energy; oil sector; war; import dependence; energy shortage; alternative energy sources

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## INTRODUCTION

The economic security of industries plays a crucial role in ensuring the economic and national security of countries, achieving sustainable development goals, providing employment, and economic growth. Considering the priority areas of industrial development, the key aspects that influence the achievement of the desired level of economic security in the industry sector include energy security, innovation and competitiveness, resource efficiency, and risk management. Energy and oil industry security in Ukraine is most relevant to EU countries due to their territorial proximity. Accordingly, it is also important to examine the EU's response and capabilities to ensure its own energy security.

According to M. Melnikova (2022), economic security is closely linked to other components of national and regional security, including environmental and energy

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security. Among the threats to economic development, a special place is occupied by threats to energy security. Energy is crucial for all aspects of human life, while energy security is considered a priority area of security policy, according to D. Mara *et al*. (2022) and J. Strojny *et al*. (2023). Greening production processes and ensuring an adequate level of energy savings and efficiency are major areas for maintaining economic security at a prominent level. A suitable security management system should be based on a combination of economic, environmental, information, and energy parameters (Shchurov, 2022). However, energy security has raised serious concerns related to environmental issues (Lin & Raza, 2020), human factors (Yeshitila *et al*., 2021), and escalating conflicts (Zhou *et al*., 2023) that relate to or cause problems in the energy sector. This necessitates the development of a proper energy policy that factors in the geopolitical features of the state.

As one of the principal elements of the energy industry, the oil industry plays a leading role in the global and regional economies, according to X. Gong *et al*. (2022). The modern market for petroleum products is complex and depends on a range of factors, including supply, demand, technological development, and geopolitical events. The global demand and production of petroleum products are of immense importance for the economies of countries and energy security, as stated by D. Donets *et al*. (2024). Ensuring the security of the oil industry is critical in the face of significant threats, such as military operations. The war in Ukraine, which began with a full-scale Russian invasion, has had dire consequences in all spheres of life, not only in Ukraine but also in the world, as A. Mazaraki & T. Melnyk (2022) have noted. T. Rabocha *et al*. (2023) emphasised the fact that Ukraine's industry has been under merciless enemy attacks, especially energy facilities, including oil refineries.

Therefore, the study of the main security risks of the oil refining industry in Ukraine and ways to improve security is a relevant area of research, as this topic goes beyond the regional scale, gaining global importance for countries around the world. The purpose of this study was to examine the most possible threats in the industrial sector on the example of the oil refining industry. Objectives of the study: to identify the key risks to oilfield security in the global context and for Ukraine; to analyse the consequences of the war in Ukraine for the EU's energy security; to identify priority areas for ensuring the security of Ukraine's oil industry sector.

## MATERIALS AND METHODS

The study employed a comprehensive system of scientific methods. To investigate the definitions of the term "economic security" and its components, the study employed the formal legal method, which helped to cover this term and its elements from a legal standpoint. This method was used to review such regulations as The Strategy of Economic Security of Ukraine for the Period Up to 2025 (2021) (the Strategy) and Order of the Ministry of Economic Development and Trade of Ukraine No. 1277 "On Approval of Methodological Recommendations for Calculating the Level of Economic Security of Ukraine" (2013). Risks to the security of the oil industry as one of the key components of economic security were identified using qualitative analysis of scientific texts. The use of this method helped to identify the critical risks presented in the scientific literature, and the principal criterion for selecting risks was their global nature, as well as their impact on both import-dependent and oil-export-dependent countries. To characterise the key risks to the safety of the oil industry, the study employed the descriptive method, which allowed for an explanation of the nature and probable damage from the risks. The method of statistical analysis was used to investigate the trends and structure of a range of indicators, specifically the share of the extractive industry and its components in the Ukrainian industry in 2023, the largest producers of crude oil and condensate in 2023. The analysed data is publicly available (EU imports..., 2023; EIA: US is the leading producer..., 2024; Volume of industrial products..., 2024).

Furthermore, the study relied heavily on the results of the survey method. Seven professionals with 5 to 14 years of experience in management positions in the oil industry were invited to take part in the survey, which was conducted by sending questionnaires via email. The questionnaires were sent out for review a week before the results were collected. The survey was conducted according to the American Sociological Association's code of ethics (1997). The experts were asked to assess the threats to the energy sector contained in the Strategy in terms of their significance or criticality for the Ukrainian oil industry. The assessment was made on a scale from 1 to 10, where 1 means the threat has no real impact on the oil industry, while 10 means the threat has a critical impact on the oil industry. Based on the assessment results, weighted averages were calculated, which made it possible to derive an integrated assessment for each threat and identify a range of the most substantial threats. Similarly, integral assessments were determined for the priority areas of ensuring the security of Ukraine's oil and gas sector. The application of this method made it possible to link the risks identified in the theoretical part of the study with those that are particularly threatening in practice, as well as to identify practical areas for improving the situation.

## RESULTS

The Order of the Ministry of Economic Development and Trade of Ukraine No. 1277 "On Approval of Methodological Recommendations for Calculating the Level of Economic Security of Ukraine" (2013) defines economic security as a state of the economy that allows it to be resilient in the event of internal and external threats, to maintain the due level of competitiveness, and to be capable of balanced and sustainable growth. According to the Strategy, ensuring national economic interests has two key areas: security and development. In times of war, security comes to the fore, but this does not mean abandoning development goals. According to the Strategy, Ukraine's economic security consists of the following elements: financial security, production security, foreign economic security, investment and innovation security, and macroeconomic security. In 2010-2019, these components were characterised by an unsatisfactory or dangerous state (Table 1).

**Table 1.** Indicators of the level of economic security of Ukraine by components (percentage of the optimum value)

| Component of economic security | Level of achievement of the optimum value | Characteristics of the state |
|---|---|---|
| Financial security | 42% | Unsatisfactory |
| Industrial security | 53% | Unsatisfactory |
| Foreign economic security | 34% | Dangerous |
| Investment and innovation security | 32% | Dangerous |
| Macroeconomic security | 38% | Dangerous |

**Source:** compiled by the authors based on The Strategy of Economic Security of Ukraine for the Period Up to 2025 (2021)

In the context of the subject under study, the greatest interest is occupational safety, which is directly related to the level of industrial development. In turn, energy security can be considered one of the critical elements of industrial security, as the modernisation and development of energy infrastructure facilities are part of the industrial security objectives. As noted above, in wartime, energy security has experienced considerable problems that have revealed its vulnerabilities and demonstrated its critical importance for the state. Considering the above, it is proposed to focus on energy security as a component of the country's economic security, namely, on the oil industry. This industry in Ukraine, on the one hand, has great potential, but on the other hand, it has become one of the most vulnerable in the wartime situation, as will be discussed in detail below.

In modern conditions of geopolitical instability, the oil industry is exposed to a range of substantial risks that pose a considerable threat to the economic security of countries. These risks include increased economic dependence for both import-dependent countries and those that are heavily dependent on oil exports. For import-dependent countries, the principal threat lies in their growing dependence on external suppliers of resources and fluctuations in energy prices. This can lead to higher costs and the deterioration of relations with external partners. The most vulnerable countries are those that do not have sufficient capacity to develop alternative energy sources or obtain energy through other channels. Countries that depend on oil exports are most likely to suffer from lower energy prices, currency fluctuations, and considerable fluctuations in energy demand. This could lead to a decline in export earnings, which are a key source of revenue for such countries, and thus affect their overall financial and economic stability and security. Countries with a low diversification of economic sectors are in a particularly threatening position. Another risk to the economic security of countries related to the oil industry is the escalation of conflicts over the control of resources. For the economy, this means the risk of a freeze in oil product exports due to possible conflicts, including military conflicts, which adversely affect both export-dependent and import-dependent countries. For the former, this will lead to a reduction in income and a deterioration in the overall economic situation, while for the latter, it will lead to a shortage of energy resources and rising energy prices. Furthermore, in case of an armed conflict, the risk of additional economic losses increases significantly.

Terrorist and cyberattacks in the oil industry pose high risks to economic security. In addition, such attacks, along with other possible accidents during oil production and transportation, threaten such a vital component of economic security as environmental safety. Ukraine is an import-dependent country, despite the fact that it ranks second in oil reserves among European countries. Prior to the full-scale invasion, production was over 1 million tonnes, and most of it was exported. At the same time, import dependence reached 80%, which can be explained by the fact that only two of the country's six oil refineries were operating. Since the outbreak of the war, the situation has deteriorated, specifically because the aggressor country bombed the country's largest oil refinery and has been constantly attacking Ukrainian oil depots. According to estimates, the Black Sea could produce about 10 billion $m^3$ of oil, but this is impossible due to the occupation (Ukraine's subsoil..., 2023). Figure 1 shows the share of the extractive industry and its components in the Ukrainian industry as of 2023. Independent experts' surveys of the biggest threats to the national oil industry in Ukraine have identified a range of threats, as presented in Figure 2.

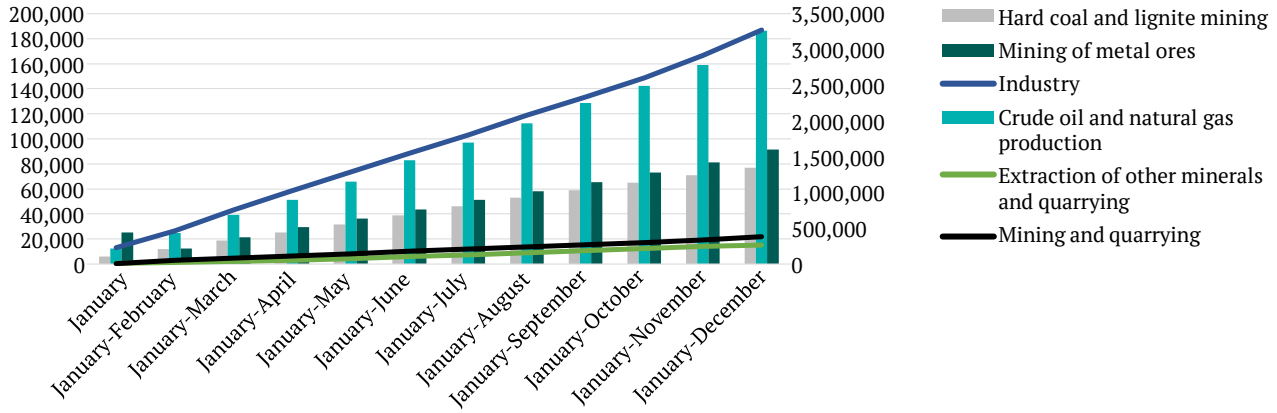


**Figure 1.** Share of the extractive industry and its components in the Ukrainian industry in 2023

**Source:** made by the authors based on Volume of industrial products sold by type of activity (2024)

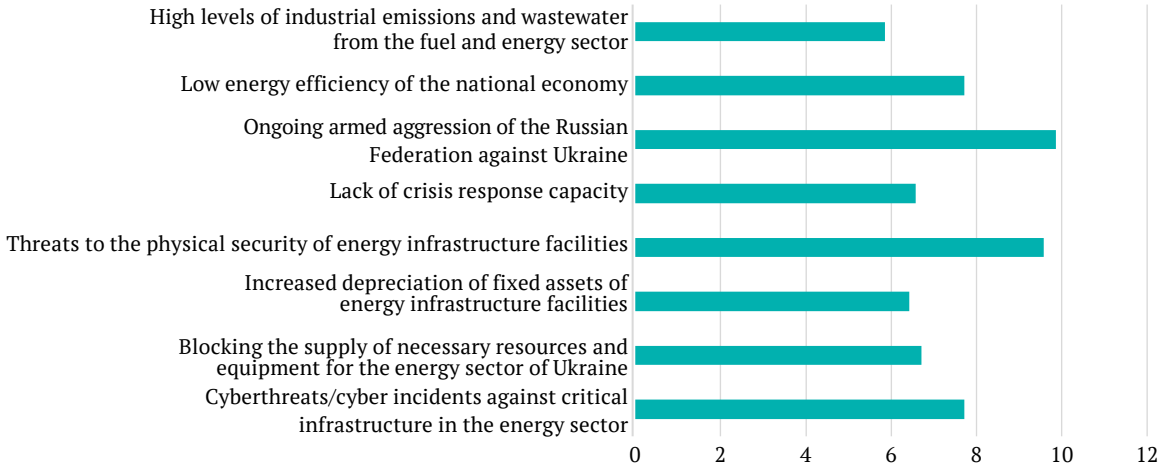


**Figure 2.** The greatest threats in the oil industry at the national level according to the survey

**Note:** the numerical value corresponds to the average of the experts' assessments for each identified threat

**Source:** made by the authors

Thus, the greatest threats to Ukraine's energy sector in general and the oil sector in particular are generated by the Russian invasion. First and foremost, it is the physical destruction of energy infrastructure facilities, which poses a critical threat to the country's economic and national security. Risks generated in Ukraine's energy sector in general and the oil and gas sector in particular have a direct impact on global trends in this area. Most often, these risks are associated with the fact that the aggressor country is a major exporter of oil and other energy resources (Fig. 3). However, energy security is also influenced by a range of other factors and interrelationships, which necessitates a more detailed analysis. The situation in the energy sector in Ukraine is of particular significance for the EU countries, both in the context of Ukraine's European integration intentions and considering the impact of the war on the energy situation in the EU itself.

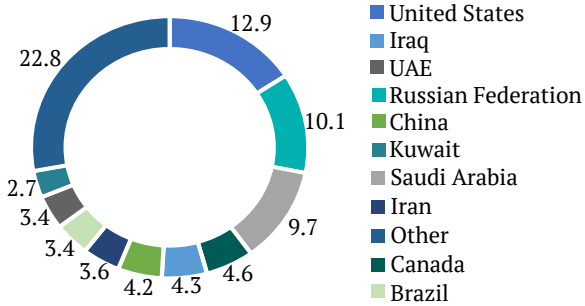


**Figure 3.** Largest crude oil and condensate producers in 2023, million barrels per day

**Source:** compiled by the authors based on EIA: US is the leading producer of crude oil for six years (2024)

The EU is facing a range of crucial issues in the areas of economic security in general and energy security specifically (Tichý & Dubský, 2024). The adoption of the European Green Deal and the Paris Agreement resulted in a rapid rise in energy prices, increased dependence on imports, including from the Russian Federation, and an energy crisis. Therewith, the expected acceleration of the energy transition did not occur, and the rate of development of renewable sources was substantially slower than desired. Promoting the ban on nuclear power and the development of natural gas may have been somewhat premature, as it exacerbated the energy deficit. Furthermore, with very low $CO_2$ emissions, the EU has imposed a range of restrictions without considering the role of other actors, such as China. Against this backdrop, the consequences of the COVID-19 pandemic, followed by Russia's full-scale invasion of Ukraine, have proved to be extremely challenging for the EU. Sanctions against the Russian Federation have also affected the EU itself, driving up prices for oil and other resources. Thus, on December 5, 2022, the EU's ban on maritime imports of crude oil from the Russian Federation came into force. Import dependence on Russian fuel has proved to be a considerable problem, namely because of the need to find alternative supplies. However, statistics show that the problem of ensuring energy independence on the one hand and energy security on the other hand can be solved, among other measures, through the diversification of suppliers. Figure 4 and Figure 5 show that the EU's dependence on Russian imports is decreasing, thanks to supplies from other partners.

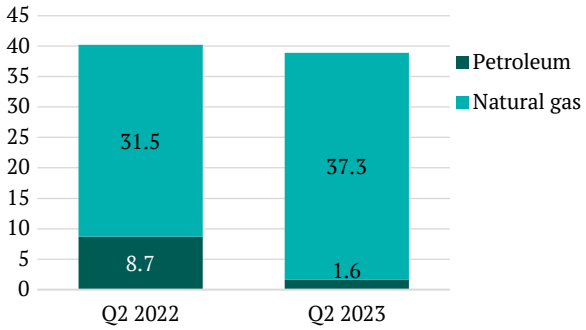


**Figure 4.** EU imports of petroleum and natural gas, monthly averages in net mass, million tonnes

**Source:** made by the authors based on EU imports of energy products continued to drop in Q2 2023 (2023)

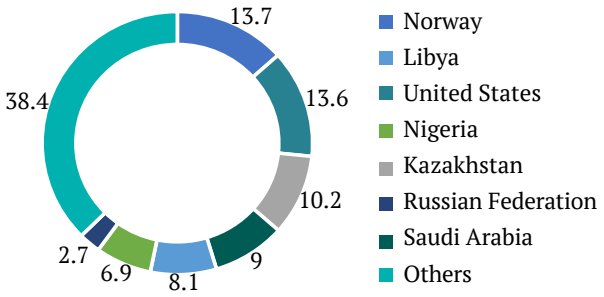


**Figure 5.** EU imports of petroleum by partner in Q2 2023, share of trade in value, %

**Source:** made by the authors based on EU imports of energy products continued to drop in Q2 2023 (2023)

Figure 4 shows how Russia's oil imports fell over the year. In contrast, the shares of other partners increased over the same period (Fig. 5). Thus, imports from Norway grew by 3.5%, imports from Kazakhstan – by 3.2%, imports from the United States – by 2.1%, and imports from Saudi Arabia – by 2.3%. Furthermore, Libya has become an important partner of the EU. Along with diversifying suppliers, it is important to develop internal capabilities, such as hydrogen energy and renewable resources. Considering that renewable resources are desirable but unstable, this may necessitate a reserve of conventional resources. This may be contrary to achieving environmental goals, but it may be necessary in critical circumstances. Furthermore, it is essential to put an end to Russia's aggression in Ukraine, as this can substantially change the energy security situation for the better. Assisting Ukraine in its fight against the aggressor is therefore an important strategic task for ensuring energy and economic security in the EU.

This analysis has helped to identify the biggest threats to energy security in the EU and Ukraine in general and to the economic security of the oil sector in these regions in particular. As the analysis above suggests, the EU is addressing the challenges faced in the energy sector mainly through the diversification of suppliers and the use of internal capabilities and resources. However, for Ukraine, measures to ensure economic and energy security may have certain specific features considering the martial law and increased risks, including the risk of physical destruction of energy facilities (Żuk & Żuk, 2022; Aitken & Ersoy, 2022). Therefore, the investigation of such features is of exceptional value both for Ukraine and other countries that may find themselves in such an atypical situation when it becomes necessary to ensure economic and energy security in times of war. The same approach used to identify the biggest threats to the national oil industry in Ukraine, i.e., through a survey of independent experts, was used to identify priority areas for ensuring energy security in Ukraine as an important component of economic security. The distribution of integral scores determined by experts' responses is presented in Figure 6.

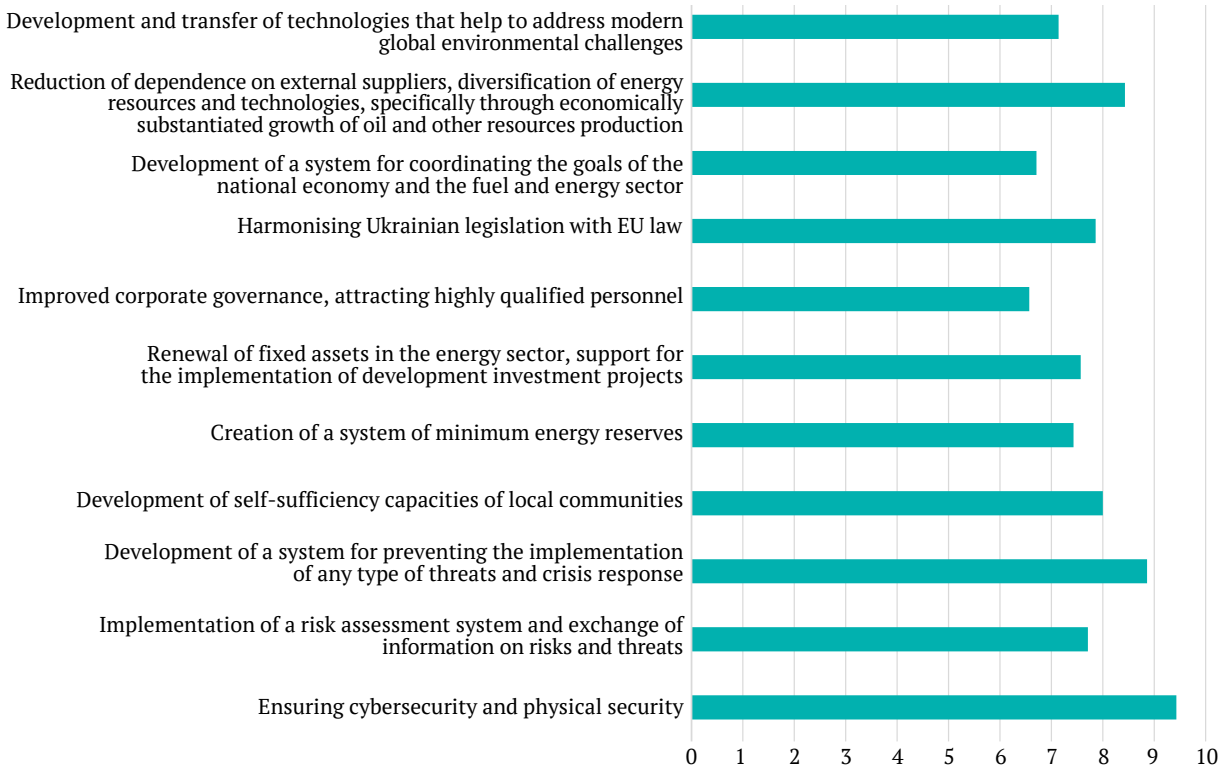


**Figure 6.** Priority areas for ensuring the security of the oil industry sector in Ukraine

**Source:** compiled by the authors

Thus, in the context of war, such measures to ensure the security of the oil sector as physical and cybersecurity, the development of response systems in case of a crisis, and, similar to the EU approach, the diversification of energy suppliers and sources come to the fore. These measures generally apply to other branches of the energy

sector, and directly affect both the level of energy security and the level of economic security of the state as a whole.

## DISCUSSION

The study found that the key risk for import-dependent countries is increased dependence on external suppliers and fluctuations in resource prices, which is also relevant for Ukraine. J. Kamyk *et al*. (2021) investigate the security of the Polish oil refining industry. The country is also import-dependent, with crude oil imports accounting for more than 97% of internal consumption. Therewith, the share of crude oil consumed tends to grow steadily. The study identified crude oil as a critical resource for ensuring energy security in the country until 2040. Despite efforts to diversify supplies, the country's supply risk is still high. Poland's experience shows that the replacement of oil products with various types of renewable energy sources cannot develop as dynamically as in Western Europe. Unlike Poland, Ukraine has more significant oil reserves, but Russia's armed aggression is hampering the normal functioning of the oil industry. Therefore, following the example of Poland, it is important for Ukraine to make great efforts to ensure optimum diversification of supplies.

This study noted that countries dependent on crude oil exports face the greatest threats from declining energy prices, currency fluctuations, and considerable fluctuations in demand. No concrete countries were considered in the study, but there are many studies in the scientific literature covering the experience and research of economic problems of individual countries dependent on oil exports. Countries such as the United Arab Emirates have challenges in ensuring the security of the oil industry. The country has significant oil reserves and is actively engaged in its production and refining, so there is no problem of resource sufficiency or import dependence. Therefore, the country faces more substantial challenges in ensuring cybersecurity in the oil industry. M.J. AL-Dhanhani & J.E.M. Jizat (2021) note that the problem of implementing appropriate cybersecurity measures is exacerbated by the development of technology, which may threaten the implementation of new sophisticated cyberattacks. Such incidents pose risks to the viability of oil companies, which increases the relevance of researching the effectiveness of various cybersecurity measures, including multidimensional systematic risk management programmes. Considering the high risks to the cybersecurity of the oil industry identified for Ukraine in the present study, the recommendations of the researchers should be considered when developing programmes and strategies to improve energy security in Ukraine.

H. Yuan *et al*. (2023) examined the experience of China, which is also a major crude oil producer. Researchers point out that the country's economic development is highly dependent on crude oil, as China is also the largest importer and consumer of this resource. Therefore, China's oil security is crucial to its economic development. The study covers how geopolitical risk affects China's oil security. The researchers found that to ensure uninterrupted supply of the resource, many initiatives are needed from oil companies, including the acquisition of shares and development of oil fields. Furthermore, scientists insist on the need to improve ties with oil exporting countries, which will help protect the production and transportation of this resource. For instance, this can be achieved through participation in various United Nations initiatives, such as the African peacekeeping initiative and support for Somalia. As a hedge against oil price volatility, the study proposes crude oil futures in renminbi. Similarly to the cited study, the present study covered the risks for the oil sector, but considering the differences in the geopolitical situation in the countries under study, such risks are noticeably different. At the same time, in the future, Ukraine can draw on China's experience in implementing oil security initiatives, adapting them to its own conditions.

A. Zhuparova *et al*. (2020) investigate the case of Kazakhstan. The country has considerable oil reserves, but researchers have found that the country's export-oriented economy, which has long supported the country's financial security, has exhausted itself. This is caused by the volatility of global resource markets. Thus, the commodity economy cannot ensure the country's high competitiveness on the global stage and achieve financial security. The commodity-based economy leads to an "eating up" of fixed assets and a shortage of investment resources. The researchers see the solution to the problem in economic diversification, which will allow the development of the manufacturing industry and high-tech sectors. Ukraine's economy can also be defined as a raw material economy, and therefore Kazakhstan's experience can be considered in plans to improve Ukraine's economic security. The cited study paid special attention to the EU energy policy in the current crisis conditions. It was found that the EU may be forced to temporarily postpone its environmental goals to ensure the energy security of its members.

M. Mišík (2022), like in the present study, refers to the EU experience. The study found that the crisis that took place in 2021-2022, which led to a spike in energy prices and a shortage of natural gas, changed the EU's priorities from decarbonisation to energy security. The energy measures taken have failed to ensure an adequate level of energy security in the EU. Furthermore, the association does not have a common foreign policy on energy security, and therefore member states were unable to take a common energy stance in the context of Russia's invasion of Ukraine. Finally, the researcher concludes that even though to achieve the EU's environmental goals by 2050, the pace of decarbonisation must increase, the EU is currently forced to take care of the energy security of its countries first and foremost. Analogous conclusions were drawn in the cited study in the part where he noted the significance of diversifying suppliers, using internal resources, and creating a reserve of conventional resources in critical situations.

P. Prisecaru (2022) also focuses on the EU energy sector. The researcher notes that the EU is forced to choose between energy security and independence, the rapid development of renewable energy sources; and the continued use of conventional resources for a long time, as well as between different approaches to fiscal policy in the field of ecology. The researcher believes that accelerating the development of alternative energy sources will not fully solve the problem of energy security, as it requires a long time to implement and is not sustainable

enough in the current environment. In the researcher's view, the EU's energy policy's shift away from resources supplied by Russia requires considerable consolidation of efforts and dedicated support from foreign partners. The researcher believes that for some time, environmental goals will be overshadowed by the need to ensure energy security, and therefore the EU should use all the internal resources at its disposal, including nuclear and fossil fuels. This is true; however, the cited study also expresses the hope that diversification of supplies will substantially contribute to solving the current problems. If oil and other resources are supplied to replace Russian ones, the EU can return to the task of accelerating the decarbonisation of its economy. Furthermore, the researcher suggests that a quick end to the war in Ukraine could have a favourable impact on the energy crisis in the EU, which was also noted in the present study. Still, the researcher adds that the EU, which is in close geographical proximity to Ukraine and therefore a direct stakeholder, should make its own efforts to bring the war in Ukraine to a desirable end, both in terms of energy support and in terms of making important geopolitical decisions.

To summarise the above, the conducted study identifies problems for Ukraine's oil sector, the main source of which is Russia's full-scale invasion of Ukraine. This primarily threatens the physical destruction of energy infrastructure facilities and the risk of cyberthreats. The situation in Ukraine has a considerable impact on the EU's energy security, and therefore investigating the EU's measures to ensure its own energy security and counteract the threats posed by the war in Ukraine is a valuable area of research. Along with the identified areas of ensuring energy security in the EU in general and oil industry security specifically, the priority areas of ensuring oil industry security for Ukraine were identified. This helped to demonstrate the challenges faced by the economy in ensuring the safety of the oil industry during martial law. Comparing the findings of the present study with the conclusions of other researchers who investigated the oil industry in certain regions, certain conclusions drawn in this study were reinforced, and unexplored aspects and valuable recommendations were identified. Specifically, such recommendations relate to opportunities for Ukraine to use the experience of Poland, which is also an import-dependent country. Ukraine can also draw on the experience of export-dependent countries in improving cybersecurity, and implementing various initiatives in the oil sector.

## CONCLUSIONS

The security of the industrial sector affects the level of regional and global economic security. In a time of war, energy security comes to the fore as the industry faces critical risks. The oil industry is a strategically essential element of the energy sector. For Ukraine, ensuring the security of the oil industry is important in terms of, on the one hand, military risks and the vulnerability of the industry, and, on the other hand, untapped opportunities for the development of this sector.

The study shows that energy security, especially the security of the oil industry, plays a significant role in the country's economic security. These areas of security are of paramount importance in times of war, as they are subject to intensified attacks by invaders and have catastrophic consequences for the affected party. The study identified key risks to the security of the oil industry at the global level. These include increased economic dependence for import-dependent countries and countries dependent on oil exports; the possible escalation of conflicts due to disagreements over resource control; and terrorist and cyberattacks. The key threats to Ukraine are posed by the large-scale invasion of the aggressor country.

Military operations lead to the physical destruction of oil industry facilities and cybersecurity breaches. Furthermore, the war in Ukraine affects the EU's energy security. This may result in the postponement of the EU's environmental goals due to the priority of ensuring the energy security of member states. The study identified areas for improving security in the Ukrainian oil industry in times of war, including ensuring physical security and cybersecurity of the oil industry, developing response systems in case of a crisis, improving energy efficiency, and diversifying energy suppliers and sources. Further research should focus on identifying priority areas for international cooperation in the energy sector.

## ACKNOWLEDGEMENTS

None.

## CONFLICT OF INTEREST

None.

## REFERENCES

[1] Aitken, C., & Ersoy, E. (2022). War in Ukraine: The options for Europe's energy supply. *The World Economy*, 46(4), 887-896. doi: 10.1111/twec.13354.

[2] ALDhanhani, M.J., & Jizat, J.E.M. (2021). Review of cyber security on oil and gas industry in United Arab Emirates: Analysis on the effectiveness of the National Institute of Standards and Technology's (NIST) cybersecurity framework. *Turkish Journal of Computer and Mathematics Education*, 12(11), 714-720. doi: 10.17762/turcomat.v12i11.5954.

[3] American Sociological Association's code of ethics. (1997). Retrieved from https://www.asanet.org/wp-content/uploads/savvy/images/asa/docs/pdf/CodeofEthics.pdf.

[4] Donets, D., Taransky, I., & Rykovanova, I. (2024). Challenges of the global petroleum products market and their impact on national security: Prospects and risks. *Academic Visions*, 28. doi: 10.5281/zenodo.10705054.

[5] EIA: US is the leading producer of crude oil for six years. (2024). Retrieved from https://safety4sea.com/eia-us-is-the-leading-producer-of-crude-oil-for-six-years/.

[6] EU imports of energy products continued to drop in Q2 2023. (2023). Retrieved from https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20230925-1.

[7] Gong, X., Sun, Y., & Du, Z. (2022). Geopolitical risk and China's oil security. *Energy Policy*, 163, article number 112856. doi: 10.1016/j.enpol.2022.112856.

[8] Kamyk, J., Kot-Niewiadomska, A., & Galos, K. (2021). The criticality of crude oil for energy security: A case of Poland. *Energy*, 220, article number 119707. doi: 10.1016/j.energy.2020.119707.
[9] Lin, B., & Raza, M.Y. (2020). Analysis of energy security indicators and CO2 emissions. A case from a developing economy. *Energy*, 200, article number 117575. doi: 10.1016/j.energy.2020.117575.
[10] Mara, D., Nate, S., Stavytskyy, A., & Kharlamova, G. (2022). The place of energy security in the national security framework: An assessment approach. *Energies*, 15(2), article number 658. doi: 10.3390/en15020658.
[11] Mazaraki, A., & Melnyk, T. (2022). Economic security of Ukraine under the conditions of Russian aggression. *Scientia Fructuosa*, 145(5), 4-28. doi: 10.31617/1.2022(145)01.
[12] Melnikova, M. (2022). On the impact of distributed energy generation on improving the economic security of the region. In *Global security and asymmetry of the world economy in the conditions of unstable development of economic systems: Proceedings of the II international scientific and practical conference* (pp. 163-164). Kropyvnytskyi: Central Ukrainian National Technical University.
[13] Mišík, M. (2022). The EU needs to improve its external energy security. *Energy Policy*, 165, article number 112930. doi: 10.1016/j.enpol.2022.112930.
[14] Order of the Ministry of Economic Development and Trade of Ukraine No. 1277 "On Approval of Methodological Recommendations for Calculating the Level of Economic Security of Ukraine". (2013, October). Retrieved from https://zakon.rada.gov.ua/rada/show/v1277731-13#Text.
[15] Prisecaru, P. (2022). The war in Ukraine and the overhaul of EU energy security. *Global Economic Observer*, 10(1), 16-25.
[16] Rabocha, T., Maslii, O., Robochyi, V., Frolov, O., & Pizintsali, L. (2023). Ukraine's energy supply in the defense sector: The first lessons of war. *Sustainable Engineering and Innovation*, 5(2), 219-246. doi: 10.37868/sei.v5i2.id236.
[17] Shchurov, I. (2022). Criterial approaches to the oil and gas industry security activities assessment. *Bulletin of the National Technical University "Kharkiv Polytechnic Institute" (Economic Sciences)*, 3, 14-20. doi: 10.20998/2519-4461.2022.3.14.
[18] Strojny, J., Krakowiak-Bal, A., Knaga, J., & Kacorzyk, P. (2023). Energy security: A conceptual overview. *Energies*, 16(13), article number 5042. doi: 10.3390/en16135042.
[19] The Strategy of Economic Security of Ukraine for the Period Up to 2025. (2021, August). Retrieved from https://zakon.rada.gov.ua/laws/show/347/2021#Text.
[20] Tichý, L., & Dubský, Z. (2024). The EU energy security relations with Russia until the Ukraine war. *Energy Strategy Reviews*, 52, article number 101313. doi: 10.1016/j.esr.2024.101313.
[21] Ukraine's subsoil: Why our enemies are so interested in it. (2023). Retrieved from https://finance.ua/ua/goodtoknow/nadra-ukrainy.
[22] Volume of industrial products sold by type of activity. (2024). Retrieved from https://ukrstat.gov.ua/operativ/operativ2007/pr/orp/orp_u/arh_orp_u.html.
[23] Yeshitila, D., Kitaw, D., & Jilcha, K. (2021). Applying lean thinking to improve operational safety in oil and gas industry. *Open Journal of Safety Science and Technology*, 11(3), 120-141. doi: 10.4236/ojsst.2021.113009.
[24] Yuan, H., Zhao, L., & Umair, M. (2023). Crude oil security in a turbulent world: China's geopolitical dilemmas and opportunities. *The Extractive Industries and Society*, 16, article number 101334. doi: 10.1016/j.exis.2023.101334.
[25] Zhou, X.-Y., Lu, G., Xu, Z., Yan, X., Khu, S.-T., Yang, J., & Zhao, J. (2023). Influence of Russia-Ukraine war on the global energy and food security. *Resources, Conservation and Recycling*, 188, article number 106657. doi: 10.1016/j.resconrec.2022.106657.
[26] Zhuparova, A., Mukusheva, A., Marat, A., & Sagi, G. (2020). Impact of the oil sector on the financial security of the national economy. *The Journal of Economic Research & Business Administration*, 134(4), 81-91. doi: 10.26577/be.2020.v134.i4.07.
[27] Żuk, P., & Żuk, P. (2022). National energy security or acceleration of transition? Energy policy after the war in Ukraine. *Joule*, 6(4), 709-712. doi: 10.1016/j.joule.2022.03.009.

# Сутність та особливості економічної безпеки галузі промисловості

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**Анотація.** Забезпечення економічної безпеки галузі промисловості та такого її елементу, як енергетична безпека, є критично важливим для економіки країн, особливо в сучасних умовах ескалації воєнних конфліктів. Метою роботи було дослідження найбільш імовірних ризиків для забезпечення безпеки сектору промисловості на прикладі нафтопромислової галузі. У роботі застосовано формально-юридичний метод, метод кваліативного аналізу текстів, описовий метод, метод статистичного аналізу та метод опитування. У результаті проведеного дослідження визначено місце енергетичної безпеки, зокрема, безпеки нафтопромислової галузі в системі економічної безпеки, підкреслено її виключне значення, особливо в умовах війни. Виявлено основні глобальні ризики для забезпечення безпеки нафтопромислової галузі, до яких належать: посилення економічної залежності для імпортозалежних країн та для держав, що залежать від експорту нафти; загострення конфліктів через суперечності щодо контролю над ресурсами; реалізація терористичних та кібернетичних атак. Було встановлено, що для України основні загрози створюються через російське вторгнення на її територію, що спричиняє такі критичні ризики, як фізичне знищення об'єктів нафтопромислової галузі та порушення кібербезпеки. У дослідженні підтверджено, що війна в Україні може чинити суттєвий вплив на енергетичну безпеку Європейського Союзу. Цей вплив може спричинити відкладання екологічних цілей об'єднання через необхідність термінового забезпечення власної енергетичної безпеки. Виявлено напрями підвищення безпеки у нафтопромисловості України в умовах війни, зокрема, забезпечення фізичної безпеки та кібербезпеки, розробка планів реагування у випадку реалізації кризових ситуацій, підвищення енергоефективності національної промисловості. Результати дослідження можуть бути корисними у процесі розробки заходів з оптимізації енергетичної політики

**Ключові слова:** енергетика; нафтовий сектор; війна; імпортозалежність; дефіцит енергетичних ресурсів; альтернативні джерела енергії